

CLAIMS

1. A rubber composition for tires which comprises 100 parts by mass of (A) copolymer (a) which is a styrene-butadiene copolymer having a weight-average molecular weight of 4.0×10^5 to 3.0×10^6 , as obtained in accordance with gel permeation chromatography and expressed as a value of corresponding polystyrene, a content of bound styrene St(a) of 10 to 50% by mass and a content of a vinyl unit in a butadiene portion of 20 to 70%; 10 to 200 parts by mass of (B) copolymer (b) which is a hydrogenated styrene-butadiene copolymer having a weight-average molecular weight of 5.0×10^3 to 2.0×10^5 , as obtained in accordance with gel permeation chromatography and expressed as a value of corresponding polystyrene, a content of bound styrene St(b) which is in a range of 25 to 70% by mass and satisfies a relation expressed by equation (I) and a fraction of hydrogenated double bond in the butadiene portion of 60% or greater; and (C) at least one substance selected from resins providing tackiness to the rubber composition and liquid polymers having a weight-average molecular weight of 1,000 to 50,000, equation (I) being:

$$\text{St(b)} \geq \text{St(a)} + 10 \quad \dots (I)$$

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2. A rubber composition for tires according to Claim 1, wherein the content of bound styrene St(b) in component (B) is 30 to 60% by mass.

3. A rubber composition for tires according to any one of Claims 1 and 2, wherein the fraction of hydrogenated double bond in the butadiene portion is 80% or greater.

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4. A rubber composition for tires according to any one of Claims 1 to 3, wherein an amount of component (B) is 20 to 100 parts by mass per 100 parts by mass of component (A).

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5. A rubber composition for tires according to any one of Claims 1 to 4, wherein equation (I) is:

$$\text{St(b)} \geq \text{St(a)} + 15 \quad \dots \text{ (I)}$$

10 6. A rubber composition for tires according to any one of Claims 1 to 5, wherein component (C) is a synthetic resin and/or a natural resin.

7. A rubber composition for tires according to Claim 6, wherein the synthetic resin is at least one resin selected from a group consisting of
15 petroleum-based resins, phenol-based resins, coal-based resins and xylene-based resins.

8. A rubber composition for tires according to Claim 7, wherein the petroleum-based resin is a petroleum resin modified with a compound
20 selected from unsaturated alicyclic compounds, compounds having hydroxyl group and unsaturated carboxylic acid compounds.

9. A rubber composition for tires according to Claim 8, wherein the petroleum-based resin is a C₉-based petroleum resin modified with a
25 unsaturated alicyclic compound.

10. A rubber composition for tires according to Claim 9, wherein the unsaturated alicyclic compound is dicyclopentadiene.

11. A rubber composition for tires according to Claim 8, wherein the petroleum-based resin is a C₉-based petroleum resin modified with a compound having hydroxyl group.

12. A rubber composition for tires according to Claim 11, wherein the compound having hydroxyl group is a phenol-based compound.

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13. A rubber composition for tires according to Claim 8, wherein the petroleum-based resin is a C₉-based petroleum resin modified with an unsaturated carboxylic acid compound.

14. A rubber composition for tires according to Claim 13, wherein the unsaturated carboxylic acid compound is maleic acid.

15. A rubber composition for tires according to Claim 6, wherein the natural resin is a terpene-based resin.

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16. A rubber composition for tires according to Claim 15, wherein the terpene-based resin is a terpene-phenol resin.

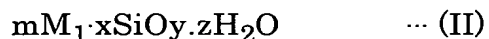
17. A rubber composition for tires according to any one of Claims 6 to 16, wherein the synthetic resin and/or the natural resin has a softening point of 200°C or lower.

18. A rubber composition for tires according to any one of Claims 1 to 17, wherein an amount of component (C) is 10 to 150 parts by mass per 100 parts by mass of a rubber component.

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19. A rubber composition for tires according to any one of Claims 1 to 18, which further comprises a filler.

20. A rubber composition for tires according to Claim 19, wherein the
10 filler is at least one filler selected from carbon black, silica and inorganic compounds represented by following formula (II):



wherein M_1 represents at least one metal, metal oxide, metal hydroxide, hydrate of the metal, the metal oxide or the metal hydroxide or metal
15 carbonate, the metal being selected from Al, Mg, Ti, Ca and Zr, and m , x , y and z represent an integer of 1 to 5, an integer of 0 to 10, an integer of 2 to 5 and an integer of 0 to 10, respectively.

21. A tire which uses a rubber composition for tires described in any one
20 of Claims 1 to 20.